

(c) *Improvement of Forest growth.*(1) *Natural Reproduction.*

68. The year under report was favourable to natural reproduction as a whole, whether from seed or stool, owing to a high flood and a fair seed year. In some forests, however, the lateral overflow stood at such a great depth against the embankments, leaving behind it a layer varying from 6 to 24 inches of fresh deposit, that all vegetation was entirely buried under it. If, year after year, the present embankment policy of the Public Works Department brings about a higher and higher flood, the character of the riverain forests will materially change and the babul bearing area may considerably diminish.

69. In the Sukkur Division, owing to an extensive breach in the Sukkur-Begari Bund, the Abad and Bagargi forests were well inundated after a lapse of some years. In the riverain forests, the high floods were by no means destructive as they did not only give an impetus to the existing growth but covered the blanks with self-sown seedlings, and the forest on the new formations which have been added of recent years is speedily getting ready for the axe also.

70. In the areas protected from grazing in the riverain forests of the Naushahro Division, babul seedlings are forcing their way through the dense growth of tamarisk and reeds. In the forests which are not flooded, the reproduction from seed is absolutely *nil*, but from coppice shoots is fairly vigorous. The life of a Kundee forest can be prolonged so long as it is rigidly kept closed against browsers; surface irrigation is not necessary, and the forests both in this as well as in the Sukkur Division, which were reported in previous years to have shown signs of decay or to have actually died out, succumbed to the ravages committed by goats, sheep and camels.

71. Natural reproduction almost everywhere is excellent in the Hyderabad Division. Forests which were beyond the reach of the inundation were flooded for the first time, and bare places which were an eye-sore are now filled with healthy babul seedlings. In Unupur range, however, the silt deposit has retarded natural reproduction.

72. Where soil and situation are favourable, natural reproduction in the Jerruck Division is quite as good as in the Hyderabad Division, but Mr. Ryan, the Divisional Forest Officer, does not consider that the high floods of the last few years are such a great boon. I quote his own words, "the absence of all surface growth in the riverain babul forests owing to the repeated heavy overflows, is becoming a marked feature in them. All that can be seen in these areas are the old mature trees which were naturally established before the bund system was introduced, and these when cut down leave large blanks, for no young growth springs up to take their place." I take, however, a more hopeful view of the situation, as I think a low inundation may intervene, and if it does not, to reproduce such areas by systematic planting with the aid of the forest cultivator would present no difficulties whatever.

(2) *Artificial Reproduction.*

73. Cultural operations in this Circle are as a rule confined to scattering seed in felled compartments and other closures in order to assist natural reproduction. Regular plantations, properly so called, have not been undertaken. The Kot Sultan project, to create a Tali-forest on the lines of the Changa Manga plantation in the Punjab referred to in paragraph 57 of the last year's administration report, has been shelved pending the construction of the new Shikarpur Canal.

74. In the Sukkur Division, directly after the river fell, 600 maunds of babul seed were broadcasted. The results have been on the whole successful. Innumerable seedlings are reported to have survived the frost, and there is every reason to believe they have established themselves.

135 maunds of babul seed were scattered in closures to fill up blanks in the Naushahro Division.

The conditions being so favourable in the Hyderabad Division that most of the felled compartments reproduce themselves naturally without any artificial aid. It was therefore necessary to broadcast about 94 maunds of babul seed in these forests only.

Hundreds of seedlings, sufficient to form a dense forest, resulted from the sowing of 295 maunds of babul seed in the forests of the Jerruck Division, and the conditions of the growth in the compartments similarly treated since 1892 is most satisfactory.

(3) *Early thinnings.*

75. No thinning out was done during the year.

(4) *Other Operations for the improvement of the growing Stock.*

76. In past years, attention has not been paid to free the growing stock by cutting out destructive climbers, and it is contemplated to arrange to carry on this most important work on an extensive scale through the agency of the Protective Staff and of people who depend on the forests for their livelihood.

(5) *Experiments.*

77. An attempt was made to introduce new species in the Naushahro Division, but the soil and situation chosen for sowing the seed were so unfavourable that I am not surprised the experiment proved a complete failure.

78. Experimental sowings of the rain tree (*Iuga Sama*) were also made in the Jerruck Division with seed obtained from Dr. King, of the Calcutta Botanical Gardens, with a fair show of success. Mr. Ryan states in his report that "this tree possesses the property of extracting salt from the soil, and excellent results in this respect have been obtained by Mr. Maries by planting it in Bengal. In one locality which was planted with *Iugu Suma*, the site of an old saltpetre factory on which not even a weed would grow, in less than five years not a vestige of salt remained in the ground. There are extensive tracts of 'kalar' land in Sind which are now unproductive and which by planting with the *Iugu Sama* might be reclaimed."

(d) *Exploitation of Major Forest Produce.*

79. Timber was exploited on the selection method, and firewood fellings were conducted as heretofore by restricting them to specified compartments to be worked during the year. A statement showing the area set apart for supplying the demands of the North-Western Railway and other large consumers in firewood is given below:—

Division.	Area of compartments.
	Acres.
Sukkur	12,478
Naushahro	3,750
Hyderabad	2,480
Jerruck	500-